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## DESCRIPTION OF INVENTION FOR CERTIFICATE OF AUTHORSHIP

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(71) Leningrad Scientific and Research  
Pediatric Orthopedic Institute named after  
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(72) V.L.Adrianov, I.B.Shvedovchenko  
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(56) Microsurgery in the Management of  
Irreversible Injuries of the Forearm. Abstract  
of Candidate of Medicine Thesis, Moscow,  
1988, page 37.

(54) A METHOD OF MANAGEMENT  
OF SEQUELAE OF INTRANATAL  
TRAUMA OF BRACHIAL PLEXUS

The present invention refers to medicine,  
specifically to pediatric orthopedics.

The purpose of the present invention is  
to restore the arm abduction function in  
infants.

The invention is implemented as  
follows.

Skin incision is performed on the lateral  
surface of the chest from the axilla along the  
lateral margin of the scapula; thoracodorsal  
neurovascular bundle is mobilized to form  
the pedicle of the musculocutaneous graft.  
The musculocutaneous graft is prepared and  
formed taking into account the length of the  
humerus. Via epaulet incision on the  
shoulder girdle, the middle third of the  
clavicle and the trapezoid muscle are  
uncovered. The incision is continued along  
the humerus to the point of fixation of  
biceps tendon to the radius. Tendomuscular

(57) The present invention refers to  
medicine, specifically to pediatric  
orthopedics. The purpose of the present  
invention is to restore the arm abduction  
function in infants. Substance of the  
invention: a skin-muscle graft is formed  
from the latissimus dorsi muscle on a non-  
free neurovascular pedicle; proximal end of  
the graft is incised longitudinally; the graft  
is replanted as follows: split ends are  
attached to the clavicle and to suprascapular  
scapula, the distal end is attached to the  
radius near the biceps brachii attachment  
point. Restoration of arm function enables  
the patient to take care of himself.

ventricle of the pectoralis major muscle is  
prepared and elongated by a Z-incision.  
Musculocutaneous graft on non-free  
neurovascular pedicle is replanted to the  
biceps muscle of the arm position.  
Proximal end of the latissimus dorsi is  
preliminarily split longitudinally to  
some extent. The split ends are attached  
to the clavicle and to the suprascapular  
part of the scapula; the distal end is  
attached to the radius near the point of  
fixation of the biceps muscle of the arm.  
The arm is then immobilized for 3-4  
weeks with a thoracobrachial bandage at  
90° abduction and 20-30° anterior  
adduction.

The present method is illustrated by  
the following example.

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Patient B. was hospitalized for sequelae of bilateral intranatal trauma to the brachial plexus, more marked on the left. Following complex medical treatment a partial restoration of function of the arms occurred. However, marked limitation of active function of the left shoulder joint and the left elbow joint persisted. Atrophy and segment shortening of the left arm was present. Abduction and flexion of the shoulder was limited to 25-30°, active elbow flexion was limited to 140°. Paresis of deltoid and triceps muscles was noted. The functions of forearm and wrist muscles were normal. A musculocutaneous graft of the latissimus dorsi on a non-free neurovascular pedicle was transferred to the position of deltoid and biceps muscles. 4 weeks after the surgery arm immobilization was still maintained during sleep hours for another 4 weeks. Physical training, massage, electrical stimulation of the muscle graft and other types of physical treatment were administered. Follow-up examination at

long term revealed active abduction and flexion of the arm to 50°, active flexion of the elbow to 90°.

Thus, the present method ensures restoration of active abduction of the shoulder by preserved biomechanical principle of function of the latissimus muscle.

#### *Summary of Invention*

A method of management of sequelae of intranatal trauma by transplantation of a latissimus dorsi graft, distinguished by the way of achieving restoration of the active shoulder abduction function, which consists of additional separation of graft and neurovascular bundle, incision of the proximal part of this musculocutaneous graft on a non-free neurovascular pedicle and attachment of the graft to middle third of the clavicle, to suprascapular part of the scapula and the distal end - to tendinous part of biceps muscle of arm.

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